

ON SEMPER'S METHOD OF MAKING DRY PREPARATIONS.*

In the Journal of the Royal Microscopical Society of London for August last it is stated that "Herr Semper recently exhibited to the Würzburg Society some zoölogical and anatomical preparations which had been prepared by a new method for dry preservation. After being hardened in a solution of chromic acid [the strength to be regulated according to the delicacy of the object and varying from one-half to one per cent.], the objects are placed in alcohol [95 per cent. will answer] to remove the water and afterwards steeped in oil of turpentine and finally dried. The tissues, while drying, are permeated by innumerable small air-bubbles, and in consequence the preparations retain their original form without sensibly shrinking, while in color they assume a white tint similar to a gypsum model. The finished preparation, which is almost pure white, and which possesses a firm, leathery consistency, may be painted with colors in parts as may be required for teaching purposes. The preparations produced were partly complete animals—mussels, annelida, and so forth—with the viscera of various vertebrate and invertebrate animals. A preparation of a cat's eye showed that, after drying, the position of the parts—the lens, ciliary processes, and so forth—underwent no change. A microscopical preparation of brain, treated on this method, proved that still simpler microscopic relations were retained after the drying—and, particularly with carmine coloring, could be distinctly recognized.

Herr v. Kölliker pointed out the advantage to be derived from this method, especially the possibility of adapting the preparations for special demonstration by painting.†

The utility of a method of preparation of this kind for moderately-sized animals, usually treated as alcoholics, will at once be apparent. It would be possible to paint the subject either in the natural colors of life, or, in the case of anatomical preparations, to indicate the parts by the use of arbitrary, conventional tints. While these preparations would be readily combustible, they would be light and absolutely free from the attacks of *Dermestes*, those well-known museum pests. As a most instructive method of making dry preparations for museum display, either of whole animals or of their anatomy, it certainly deserves a trial, as it is a much neater and cleaner method than the Wickersheimer plan, in which glycerine enters as an important element, and which would be objectionable because the object could never be thoroughly dried, but would always be sticky and disagreeable to handle and liable to soil the shelves of the museum cases. In order to make the preservation effectual, after dehydration in 95 per cent. alcohol, which is strong enough

* Abstract, with remarks by J. A. Ryder.

† Verhandl. Phys.-Med. Gesell., Würzburg, XV, 1881, S. B. IX.

for the purpose, the preparation ought to be allowed to become thoroughly saturated with the oil of turpentine; the time which it will take to do this will of course depend upon the size and thickness of the object treated. The principle involved in this method is the same as that applied in making balsam or damar preparations on slips for the microscope, only that after dehydration is effected oil of cloves is used to make the object transparent instead of turpentine, although the latter is also used. The preparation is then covered with a drop of balsam and the cover-glass put on, when you have a specimen that, with a little care, will last a lifetime. The Semper is simply the microscopic method adapted to large objects which could not be mounted upon slides, and I see no reason why they should not be equally as durable as microscopical balsam preparations. It is equally important that the strong alcohol should completely saturate the specimen, else the turpentine will not find its way into all parts of it so as to render it indestructible when dry. Two or three hours would probably suffice for the saturation with alcohol or turpentine of moderately large specimens. The hardening in the chromic acid solution would require from 12 to 24 hours, according to the size of the object. This method is also free from the objection which applies to Wickersheimer's, that there are no corrosive metallic poisons used.

By placing the vessel containing the preparation as immersed under an air pump, the penetration of the liquids will be facilitated.

NOTES ON A COLLECTION OF FISHES, MADE BY LIEUT. HENRY E. NICHOLS, U. S. N., ON THE WEST COAST OF MEXICO, WITH DESCRIPTIONS OF NEW SPECIES.

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During the autumn of 1880 a cruise along the west coast of Mexico and Central America was made by the U. S. Coast and Geodetic steamer Hassler. Lieut. Henry E. Nichols, the officer in command, took much pains to make collections of fishes whenever they were obtainable. As a result of his labors we have the small but extremely valuable collection noticed in the present paper. It will be observed that twelve of the specimens came from the Revillagigedo Islands, in the open sea to the westward of Mexico, a locality where no collections of fishes had been previously made by any one. Six of these specimens belong to species new to the fauna of North America.

We give an enumeration by localities of the species in the entire collection, with the number borne by each specimen on the records of the United States National Museum.

A.—Whaler's Bay, Guadalupe Island, Lower California.

1. PSEUDOJULIS MODESTUS (Girard) Gthr.
2. PSEUDOJULIS MODESTUS (Grd.) Gthr. (No. 28,391 U. S. Nat. Mus.)